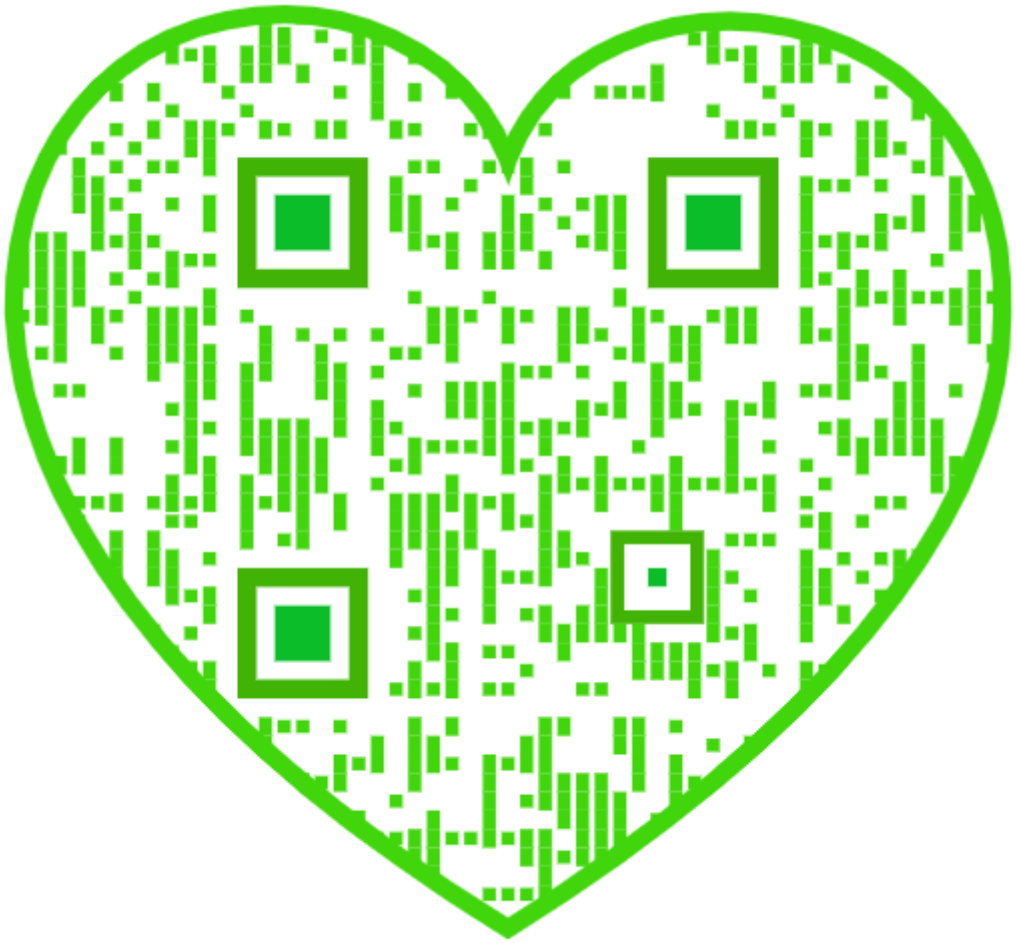
SB 353
.B8
Copy 1

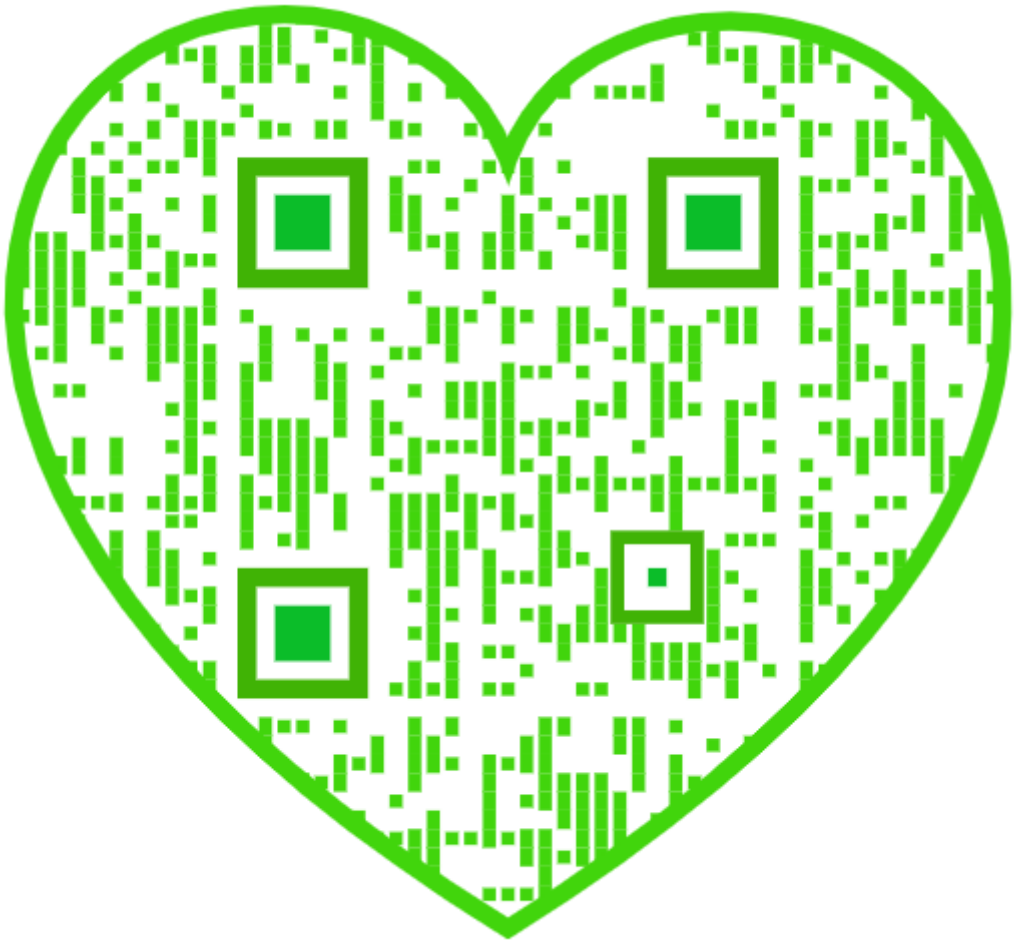
The Truth About

Mushrooms

Copyright 1912
by

Bureau of Mushroom Industry
1342 No. Clark Street
Chicago, U. S. A.





INTRODUCTION.

This little book has just one purpose. It's as simple as A. B. C. Its purpose is to tell the whole truth about Mushrooms and Mushroom Culture—why failures have been made in it by some people, and how success has been achieved and a steady and handsome income is derived by those who are willing to do things the right way.

There has been a world of misinformation on the whole subject of mushrooms and mushroom growing. Yet, it is really a simple matter to succeed, simple, easy and enjoyable. Moreover it is very profitable, and this is probably why those who are making easy money in the cultivation of mushrooms foster the prevailing impression that deep secrets are involved in the production of this highly prized and much sought delicacy.

BUREAU OF MUSHROOM INDUSTRY.

©CI.A320504

The Truth About Mushrooms

Before entering upon a discussion of the cause or causes of failures by some people in the cultivation of mushrooms, we will at the start give out the five so-called secrets of the business and state in a nut shell the underlying principles upon which uniform success is based.

THE FIVE CARDINAL POINTS

Mushrooms may be grown anywhere, at any time and by anyone where the following conditions fairly obtain:

1. Good fresh spawn.
2. A properly prepared bed with reasonable protection against weather extremes.
3. A temperature not greatly exceeding 60 degrees F., nor much lower than 50 degrees F.
4. A fairly moist atmosphere, avoiding the frequent direct application of water to the beds.
5. A gradual renewal of the air, avoiding draughts.

The above principles stated in the order of their importance, embody all the famous **secrets** of mushroom culture.

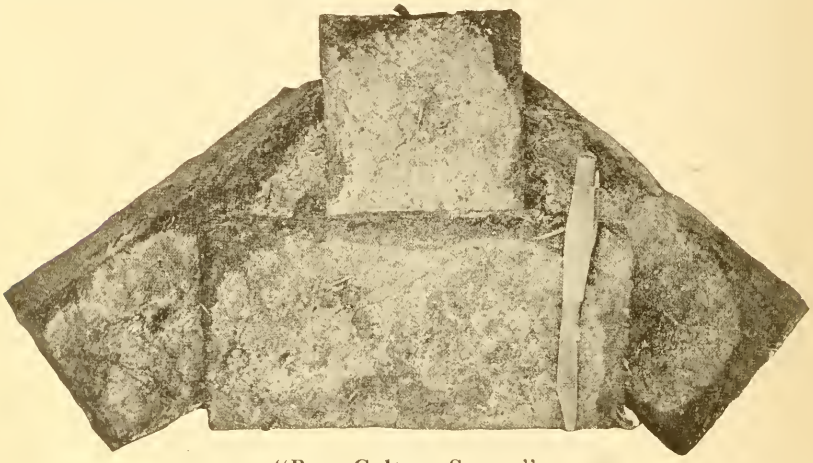
By reference to these five conditions it is at once apparent that all **but the first** are within the easy control of the grower. Above all things he must have good seed, **good spawn,** fresh spawn, fertile spawn. In nine cases out of ten the cause of failure has been **dead spawn.** The real "secret" of mushroom growing and mushroom success is therefore SPAWN.

MUSHROOM SPAWN.

Much of the mushroom spawn sold by the so-called spawn dealers, experts, "farms," and by seedsmen, is what is known as English, virgin or mill track spawn. It is wild spawn, as uncertain as any wild thing must be. You could no more be cer-

tain of a crop with such spawn than you could with any wild seed. The mushrooms from such spawn, when it does produce any mushrooms at all, are of all sizes and range in color from deep brown to lighter shades when, as the experienced grower knows, the pure white or cream colored mushroom is the mushroom for which the demand exists and for which high prices are secured.

Wild English spawn is **cheap,** however—for the man who sells it. It is of so little actual value that it comes into this country classed as fertilizer, not as seed at all. It is so low in value that with cost of the spawn, duty and freight all paid, it rarely costs the dealer or "farm" **over five cents a brick,** and then the dealer or farm proceeds to sell it at 600 to 1,000 per cent



"Pure Culture Spawn"

profit. No wonder such spawn has made some people wonder whether after all there is anything in mushroom culture.

The other kind of spawn—the kind that the big old growers, and the smaller successful growers as well, use, is known as **Pure Culture Spawn.**

Pure Culture Spawn, as the name indicates, is the result of years of work on the part of the **United States Department of Agriculture** and certain **practical** mushroom growers, and is not wild spawn but spawn (mushroom seed) produced in this country from **cultivated** mushrooms of **known** varieties, white or cream colored, and of even, big size, for which the highest prices are obtainable always because the demand is

for this kind of mushroom. The difference between the ordinary spawn and Pure Culture Spawn is the difference between wild and cultivated seeds—the difference between guesswork and certain results—the difference between failure and success.

It is to assure any one desiring to procure Pure Culture Spawn and truthful and complete information that the "Bureau of Mushroom Industry" has been established and located centrally in Chicago.

Highest Award Universal Exposition, St. Louis, 1904

THE SELECTION OF SPAWN.

Many dealers profess to sell "Selected Mushroom Spawn" that is selected by **themselves.** They will not, however, disclose their source of supply, and it is but natural to suppose that they will select the grade of spawn which yields them the largest margin of profit. It is human nature, and by some it is considered good business.

It has now been well established, however, that the experienced mushroom grower is **not looking for cheap spawn,**

he will have **none but fresh** and the very best—he is looking for results. The commercial grower cannot afford to experiment with wild spawn which has been **shipped across the ocean** and killed in the close and hot hold of a slow freighter. For similar reasons loose of flake spawn has resulted in most instances in absolute failure. The loose texture of this spawn allows the "mycelium" to deteriorate and lose its vitality so rapidly that it will not stand transportation or storage. The **brick** is now considered the safest carrying medium for the delicate growth known as the "mycelium" of the spawn.

After a careful investigation and test of the various makes of spawn on the market, the Bureau has found that the old adage is still true, **"the best is the cheapest."** Cheap spawn is worthless.

The Bureau of Mushroom Industry has therefore also made a selection of spawn for its patrons, but it is willing to take them into its confidence. It has found but one grade of spawn which comes up fully to the high standard of its requirements. It is "Lambert's Pure Culture Spawn" made by the American Spawn Company. While this high grade spawn is the **dearest** in the market, it is by far the **best** and therefore the **cheapest,** when measured by results.

The makers of "Lambert's Pure Culture Spawn" were the first to put in practice the important discovery of the pure culture method and, in collaboration with experts of the United States Department of Agriculture have steadily improved these methods, until now their spawn stands alone in its class unexcelled by any spawn in the world. They have recently introduced "spores" in their pure cultures, and the result has been such added vigor to the growth that mushrooms will appear on the beds and a total yield may be obtained in a much shorter time.

The American Spawn Company does not retail its product. It is only obtained in limited quantities by a few leading seedsmen and dealers for the use of large commercial growers who are under contracts to furnish mushrooms at stated times and in certain quantities. These experienced men are thus eliminating all elements of uncertainty from their business, and enjoy a large and steady income increasing every year.

Notwithstanding the pressing demand for this spawn, the Bureau of Mushroom Industry has succeeded in arranging with

the makers for a limited supply and has received assurances of an increased and continuous supply in the near future.

We are therefore in a position to now supply our customers with this spawn in limited quantities, and in order to build a foundation for future and permanent relations with our patrons, we are for the present practically eliminating our margin of profit, and will sell "Lambert's Pure Culture Spawn" at prices quoted by many dealers for the inferior or worthless article. (See prices on last page.)

TRADE MARK.

The phenomenal success of Lambert's spore cultures has brought into the market many cheap grades sold as "Pure Culture Spawn." They are even stamped with a close imitation of the trade mark which appears on every brick of "Lambert's Pure Culture Spawn." The genuine article is stamped with the letters PC enclosed in a **diamond, not** a circle, heart or square.

Realizing that the discovery of Pure Culture Spawn will soon result in the abandonment of English and other forms of wild spawn, some importers of the old fashion wild spawn have attempted to meet the situation by offering such spawn, at a reduced price, under the name of "English Pure Culture" spawn. They are unable, however, to name the specific variety of mushrooms which this so-called "English Pure Culture" spawn will produce. Since that is the fundamental distinction between pure culture spawn and wild spawn the deception is easily exposed.

MONEY IN MUSHROOMS

To a great many people, money-making is a mystery. They wonder how some folks, with apparently little brains get rich almost in spite of themselves. As a rule, no man ever makes considerable money by sheer luck. It is in seeing his opportunity and hanging onto it. Hundreds of people who you would

least expect are today growing mushrooms in a small way. But a small start is all they need to become independent in a very short time. Hundred of big growers all over the country, who started with only a few dollars are now solving the "mystery of money-making" for themselves and are rolling up a big bank account, while other thousands are groping around and "cussing" their luck.

It may be said there is hardly a business on earth that pays as well as pure culture mushroom growing. There is hardly a business known which requires so little labor and trouble, and so little capital, to make it successful.

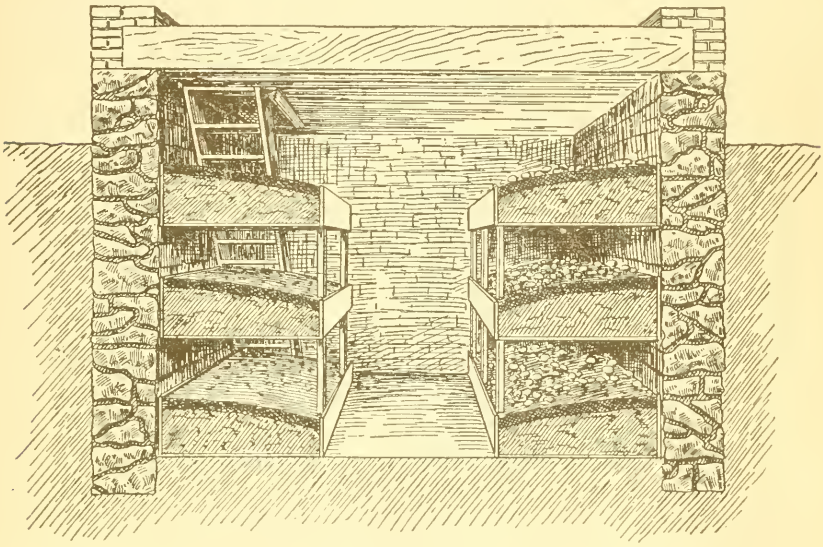
The average grower who has found that the secret of successful mushroom culture lies in the use of Pure Culture spawn, you will find is a man who enjoys more than the ordinary comforts of life. He started possibly even by borrowing the few dollars required, put his odd moments to starting his beds in an old barn, or an old building, or in a cellar. The little lumber, the small amount of dirt required, cost him nothing. The "corner in the cellar" or the old barn wasn't being used anyway, so he got busy installing his little plant instead of going around with his empty hands in his pockets worrying about how he could "make some money quick."

The average big money maker in the mushroom industry today is the man who started with little capital and no experience, and stuck to it. You will find him owning his own home, or a farm, or other real estate that he has bought and paid for out of his mushroom earnings. There are today countless elderly men, young men, farmers, business men, salaried men, clerks, energetic women and ambitious boys, in the country or in the suburbs of cities, rapidly building up for themselves a steady independent income in this simple industry.

WHERE MUSHROOMS MAY BE GROWN.

Mushroom growing is a domestic occupation, a profitable and inexpensive diversion in which the housewife or children may indulge as well as the man who grows mushrooms on a larger scale as a business. In fact the successful and prosperous growers have all gained their knowledge by experimenting in a small way, where mistakes or cultural errors are of little consequence but carry with them a valuable lesson and a practical experience which cannot be acquired in any other way.

It is remarkable how easily the proper facilities for successfully growing mushrooms may be provided. In the country, the suburbs, and even in the city a rough and ready place may nearly always be found for stating a profitable mushroom bed. If you live in the country, an old barn, or cellar; if you live in the suburbs, a part of the basement or a shed may very well be used for this purpose. With these and a few hours of your spare time, a bed can be quickly started which should net you from $10 to $50 a week, depending, of course, on the size of the bed. Even on a bed netting you a considerable sum per week, it should not be necessary to sacrifice any of the time taken up by



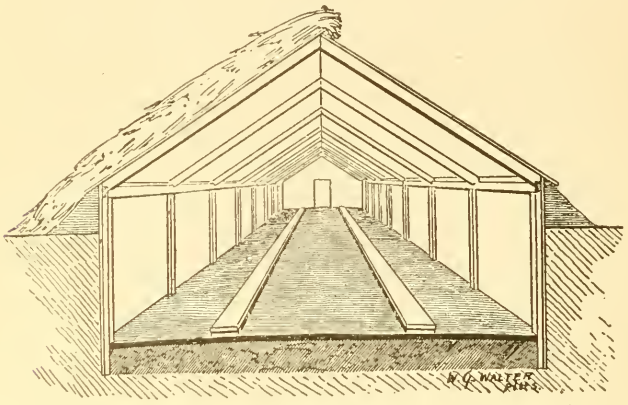
Cellar Shelves

your regular occupation. There is nothing which so ideally combines a full measure of outdoor recreation with great financial profit.

Farmers are more and more coming to realize the extraordinary profits to be gained in this industry and the splendid facilities they have ready at hand for the purpose. During the idle time on the farm, a series of mushroom beds can be made to produce a revenue often exceeding the profits from other crops.

Those who live in the suburbs are also in a particularly favorable position for successfully growing mushrooms. Many grow them primarily for their own use, and with hardly any

more labor, time or expense, have a considerable surplus of the crop left over to sell, making up a very tidy sum as clear profit every year. In fact, many large growers have made their beginning in just this way, building up a remarkably profitable business almost before they begin to realize its enormous possibilities. If you live in the suburbs start now, with a few hours of your spare time. Get you beds ready in the cellar, in the barn, tool-house or old building, and be sure of a good profit before many months have passed. You can do it if you want to.



Floor Beds

For florists and gardeners, it is a business which yields almost clear profit, and should not be overlooked. Every material is at hand without a cent of cost, and even if it should be desirable to build an extra place or shed for the purpose, the profit will exceed any obtained from the products of the garden or greenhouse.

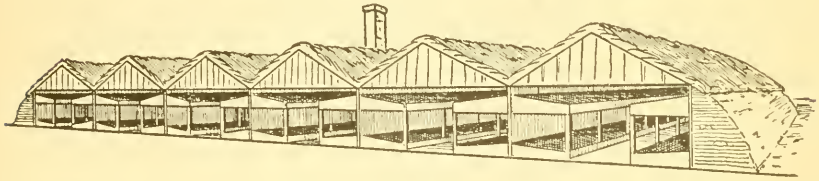
EASY FOR WOMEN.

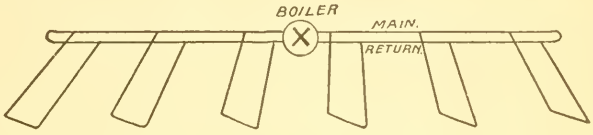
There are hundreds of women who are dependent upon their own efforts who are now engaged in the business, enjoying a good income, gradually accumulating a comfortable surplus. There is no hard work to it, surely no such work as a woman herself cannot easily do. It is a real pleasure, a recreation. It yields more than merely pin money—it is a producer upon which you can always depend, and upon which a woman can build firmly for the future. It makes her a business woman from the start.

Many housewives have maintained their mushroom beds and greatly increased their incomes without interference with their regular duties. It's simply a matter, again, of using genuine Pure Culture Spawn.

Boys and Girls have raised Pure Culture mushrooms with success, and parents looking for something to keep the hands and minds of the children busy, can do no better than to allow them to start a mushroom bed.

A Large Mushroom Plant





PERSPECTIVE OF HEATING PIPES.

From these small beginnings, profitable from the start, and the experience thus acquired, business plants have been gradually erected and steadily added to until there are today single growers who ship from 500 to 1000 pounds of fresh mushrooms per day. Most of these plants have been established within recent years, since the advent of Pure Culture Spawn has eliminated the element of uncertainty from the business.

WHEN TO GROW MUSHROOMS

This is a common question: it should not be put in that form. If expressed thus "When should mushrooms **not** be grown" it can more readily be answered. Mushrooms should not be grown where the temperature cannot be kept down below 60 or 62 degree F. It follows that the planting of the spawn should be timed so that the crop will not come into bearing during the hot summer months, except in cool cellars, caves, mines and other places where the temperature can be controlled. Except as above they may be grown throughout the year for it is ordinarily an easy matter to raise the temperature of the room a few degrees when it falls much below 50 degrees.

CULTIVATION OF THE MUSHROOM

It must be well understood from the start that there is no exclusive method of growing mushrooms. There is in fact much difference in the details of the methods employed by various growers. But all successful methods are based upon the cardinal principles outlined in the beginning of this pamphlet. The limited scope of this little book forbids any extended remarks on cultural requirements. This subject is fully treated in our larger book **"The Cultivated Mushroom" with illustrations.** This valuable book contains all the information required for a successful beginning as well as the latest developments of science on the subject for the information of the large and experienced growers.

To give the reader a general idea of the methods employed, we quote below briefly from a recognized American authority:

GENERAL CONSIDERATIONS.

"Commercially, and in a restricted sense, the term 'mushroom' is generally used indiscriminately to designate the species of fungi which are edible and susceptible of cultivation. The varieties which have been successfully cultivated for the market are nearly all derived from **Agaricus campestris, Agaricus villaticus,** and **Agaricus arvensis.** They may be white, cream or cream white, or brown; but the color is not always a permanent characteristic, it is often influenced by surrounding conditions.

"Mushrooms are grown for the market on a large scale in France and in England. It is estimated that nearly twelve million pounds of fresh mushrooms are sold every year at the Central Market of Paris. A large quantity of mushrooms are canned and exported from France to every civilized country. This industry has recently made remarkable progress in the United States, and fresh mushrooms are now regularly quoted on the markets of our large cities. They are sold at prices ranging from thirty five cents to one dollar and fifty cents per pound, according to season, demand and supply.

ESSENTIAL CONDITIONS.

"Mushrooms can be grown in any climate and in any season where the essential conditions may be found, obtained or

controlled. These conditions are, **first,** good spawn, **second,** a temperature ranging from 53 to 60 F., with extremes of 50 to 60, **third,** an atmosphere saturated (but not dripping) with moisture, **fourth,** proper ventilation, **fifth,** a suitable medium or bed. It may be seen that in the open air, these conditions are rarely found together for any length of time. It is therefore necessary, in order to grow mushrooms on a commercial basis, that one or more of these elements be artificially supplied or controlled. This is usually done in cellars, caves, mines, greenhouses, or especially constructed mushroom houses. Where abandoned mines, natural or artificial caves are available the required atmospheric conditions are often found combined and may be uniformly maintained throughout the year.

TEMPERATURE.

"Within the limits prescribed, the temperature should be uniform throughout the growth of the crop. When too cold, the development of the spawn will be retarded or arrested. A high temperature will favor the development of molds and bacteria which will soon destroy the spawn or the growing crop. The cultivation of the mushroom, as a summer crop, is therefore greatly restricted. As a fall, winter or spring crop it may be grown wherever means are at hand to raise the temperature to about 58 F. Many florists are utilizing the waste space under the benches for that purpose; they have the advantage of being able to use the expended material of mushroom beds in growing flowers.

MOISTURE.

"Moisture is an important factor in the cultivation of the mushroom, and demands intelligent application. The mushroom requires an atmosphere nearly saturated with moisture, and yet the direct application of water on the beds is more or less injurious to the growing crop. It is therefore essential that the beds, when made, contain the requisite amount of moisture, and that this moisture be not lost by excessive evaporation. They should be protected from a dry atmosphere or strong draughts. Where watering becomes necessary, it should be applied in a fine spray around the beds with a view of restoring the mositure to the atmosphere and on the beds after the mushrooms have been gathered.

VENTILATION

"Pure air is essential to a healthy crop. Provision should therefore be made for a gradual renewal of the air in the mushroom house. However, draughts must be avoided as tending to a too rapid evaporation and cooling of the beds, an unfortunate condition which cannot thereafter be entirely remedied.

THE BEDS.

"The most common type of beds is known as the "flat bed." It is made on the floor or on shelves as shown in the illustrations. It is usually about 10 inches deep. Another type, principally used in France is known as the "ridge bed" and requires more labor than the flat bed. The mushroom house and shelves, if used, should be frequently disinfected and whitewashed in order to avoid damage from insects and bacteria. The preparation of the beds and subsequent operations will be shown in connection with the other subjects.

PREPARATION OF THE MANURE.

"The best manure is obtained from horses fed with an abundance of dry and nitrogenous food. The manure of animals fed on greens is undesirable. Growers do not all follow the same method of fermenting or composting the manure. When first unloaded, the manure is left in its original state for a few days. It is then piled in heaps about three feet deep and well pressed down. In this operation the material should be carefully forked and well mixed, and wherever found too dry, it should be lightly sprinkled. It is allowed to remain in that condition for about six days when it is agains well forked and turned. In the latter operation it receives an additional light sprinkling; the dry portions are turned inside in order that the whole mass may be homogenous and uniformly moist, and the heap is again raised to about 3 feet. About six days later the operation is repeated, and in about three days the manure should be ready for the beds. It is then of a dark brown color mixed with white, free from objectionable odor. It is unctuous, elastic and moist, though not wet, and should not leave any moisture in the hand. Of course, the above rules are subject to modification according to the condition of the manure, its age and previous handling.

SPAWNING.

"The manure, having been properly composted, is spread evenly on the floor or shelves and firmly compressed in beds about 10 inches in depth. The temperature of the bed is then too high for spawning and will usually rise still higher. It should be carefully watched with the aid of a special mushroom thermometer. When the temperature of the beds has fallen to about 70 or 75 they may be spawned. The beds must be spawned when the temperature falls, **never when it rises.** The bricks of spawn are broken into 8 or 10 pieces, and these pieces are inserted from 1 to 2 inches below the surface, and about 9 or 12 inches apart. The bed is then firmly compressed. An advantage is found in breaking and distributing the spawn over the surface of the bed a few days before spawning; this allows the mycelium to absorb some moisture and swell to some extent. If the bed is in proper condition, it should not require watering for several weeks.

CASING THE BEDS.

"As soon as the spawn is observed to "run," or from 8 days to 2 weeks, the beds are cased or covered with a layer of about 1 inch of light garden loam, well screened. The loam should be slightly moist, and free from organic matter. The beds should now be watched and should not be allowed to evaporate or dry out.

PICKING.

"Mushrooms should appear in from five to ten weeks after spawning, and the period of production of a good bed ranges from two to four months. In picking the mushrooms an intelligent hand will carefully twist it from the soil and fill the hole left in the bed with fresh soil. Pieces of roots or stems should never be allowed to remain in the beds, otherwise decay might set in and infect the surrounding plants. A good mushroom bed will yield a crop of from 1-2 to 2 pounds per square foot. Mushrooms should be picked every day or every other day; they should not be left after the veils begin to break.

"For the market, the mushrooms are sorted as to size and color, and packed in one, two or five pound boxes or baskets. Since they are very perishable, they must reach the market in the shortest time.

OLD BEDS.

"It is not practicable to raise another crop of mushrooms in the material of an old bed, although this material is still valuable for garden purposes. The old material should be entirely removed, and the mushroom house thoroughly cleaned before the new beds are made. If this precaution be omitted, the next crop may suffer from the disease or enemies of the mushroom.

SPAWN.

"The cultivated mushroom is propagated from "spawn," the commercial name applied to the mycelium; the term "spawn' includes both the mycelium and the medium in which it is carried and preserved. Spawn may be procured in the market in two forms, flake spawn and brick spawn. In both forms the mycelium growth is started on a prepared medium mainly consisting of manure, and then arrested and dried. The flake spawn is short lived by reason of its loose form in which the mycelium is easily accessible to the air and destructive bacteria. It deteriorates rapidly in transportation and storage and can only be used to advantage when fresh. Growers, especially in the United States, have therefore discarded it in favor of brick spawn which affords more protection to the mycelium and can be safely transported and stored for a reasonable period.

"Until recently the manufacturer of spawn was compelled to rely entirely upon the caprice of nature for his supply. The only method known consisted in gathering the wild spawn wherever nature had deposited it and running the same into bricks or in loose material without reference to variety. Neither the manufacturer nor the grower had any means of ascertaining the probable nature of the crop until the mushrooms appeared.

PURE CULTURE SPAWN.

"The recent discovery of pure culture spawn in this country has made possible the selection and improvement of varieties of cultivated mushrooms with special reference to their hardiness, color, size, flavor and prolificness, and the elimination of inferior or undesirable fungi in the crop. The scope of this article precludes a description of the pure culture method of making spawn. It is now used by the large commercial grow-

ers and has in many sections entirely superceded the old English spawn and other forms of wild spawn. As now manufactured it resembles much in appearance the old English spawn. Some remarkable results have been obtained by the use of pure culture spawn.

"We illustrate a cluster of 50 mushrooms on one root grown by Messrs. Miller & Rogers, of Mortonville, Pa., from "Lambert's Pure Culture Spawn" produced by the American Spawn Company. Several promising varieties have already been developed by the new method, and can now be reproduced at will.

HOW TO COOK MUSHROOMS.

"To the true epicure there are but four ways of cooking mushrooms—boiling, roasting, frying them in sweet butter and stewing them in cream.

"In preparing fresh mushrooms for cooking wash them as little as possible, as washing robs them of their delicate flavor. Always bear in mind that the more simply mushrooms are cooked the better they are. Like all delicately flavored foods, they are spoiled by the addition of strongly flavored condiments.

"**BROILED MUSHROOMS**—Select fine, large flat mushrooms, and be sure that they are fresh. If they are dusty just dip them in cold salt water. Then lay them on cheese cloth and let them drain thoroughly. When they are dry cut off the stem quite close to the comb. Or, what is better, carefully break off the stem. Do not throw away the stems. Save them for stewing, for soup or for mushroom sauce. Having cut or broken off the stems, take a sharp silver knife and skin the mushroom, commencing at the edge and finishing at the top. Put them on a gridiron that has been well rubbed with sweet butter. Lay the mushrooms on the broiling iron with the combs upward. Pour a small quantity of butter, a little salt and pepper in the center of each comb from where the stem has been removed and let the mushroom remain over the fire until the butter melts. Then serve them on thin slices of buttered and well browned toast, which should be cut round or diamond shape.

"Serve the mushrooms just as quickly as possible after they are broiled, as they must be eaten when hot. So nourishing are broiled mushrooms that with a light salad they form a sufficient luncheon for anyone.

"**FRIED MUSHROOMS**—Clean and prepare the mushrooms as for broiling. Put some sweet, unsalted butter in a frying pan—enough to swim the mushrooms in. Stand the frying pan on a quick fire, and when the butter is at boiling heat carefully drop the mushrooms in and let them fry three minutes, and serve them on thin slices of buttered toast.

"Serve a sauce of lemon juice, a little melted butter, salt and pepper with fried mushrooms.

"**STEWED MUSHROOMS**—Stewed mushrooms after the following recipe make one of the most delicious of breakfast dishes: It is not necessary to use large mushrooms for stewing—small button ones will do. Take the mushrooms left in the basket after having selected those for broiling, and also use the stems cut from the mushrooms prepared for broiling. After cleaning and skinning them put them in cold water with a little vinegar, and let them stand half an hour. If you have a quart of mushrooms, put a tablespoonful of nice fresh butter in a stew pan and stand it on the stove. When the butter begins to bubble drop the mushrooms in the pan, and after they

have cooked a minute season them well with salt and black pepper. Now take hold of the handle of the stew pan and, while the mushrooms are gently and slowly cooking, shake the pan almost constantly to keep the butter from getting brown and the mushrooms from sticking. After they have cooked eight minutes pour in enough rich, sweet cream to cover the mushrooms to the depth of half an inch, and let them cook about eight or ten minutes longer. Serve them in a very hot vegetable dish. Do not thicken the cream with flour or with anything, just cook them in this simple way. You will find them perfect."

A GROWER'S EXPERIENCE.

As illustrating the different methods used successfully by mushroom growers we reproduce an article written by an enthusiastic grower and published in one of the leading dailies of the country:

"HOW TO GROW THE FESTIVE MUSHROOM—Any Cellar Can be Utilized at Small Expense and With a Profit That Looks Good—Small Clumps Sometimes Yield More than a Pound—And Then the Pleasure of it.—By. J. C. N.

"If you have any love for seeing things grow, some knack of making things grow in the garden, and a basement heated to 55 degrees or over, you can raise mushrooms hand over fist and at an outlay of effort ridiculously small compared with results easily attained.

"Most modern houses have a basement temperature around 70 degrees. Many have their storage room for storm sash and screens. Where there is such a room it will be found, I think, that some three feet of the bottom can be "pinched out" for mushroom beds, the screens fitting nicely on rough tables leaving room for the beds underneath. If the room is wide enough, say eight or nine feet, make a rough table on each side with a passageway in the center, two or three feet wide. The table legs can be of 2x4, and a 12 inch board running along the bottom makes the sides of the bed.

Ordinary Cellar Temperature Suitable

"If the room is not too close to the furnace, you may find that with the door closed you have a temperature of about 60 degrees,

which is all right. If temperature is much above this and the room has a window, bore about four half inch holes in the sash to admit cold air. In very cold weather put corks in some or all of the holes, being governed by a thermometer. Since a range of from 50 degrees, or even lower, to 60 degrees can do no harm, it will be seen that there need not be much fussing with the corks. While a bed will not be especially injured by a temperature as low as 40 degrees, at lower than 55 the crop does not come along as it should, and it is best to strike as near 60 as can be done without too much trouble. If the room is too hot and has no window, cold air can be brought to it from a nearby window through a tin tube about 1¼ inches in diameter. If the basement is not divided off into rooms, but has space that can be used almost anywhere, use a thermometer first in one location, then in another until you have a place where it will not go above 62 degrees.

If Not a Cellar, What?

"A bed of any desired length, 3½ feet wide, can be made next to wall, with 12 inch boards for the sides and ends. If you find it too hot everywhere, and still want mushrooms, sheet up a room using 2x4 uprights and nailing on horizontally the tight dry matched sheathing and have your room include all or part of a window to furnish the air needed to lower the temperature. A corner situation gives most room for least outlay. If a corner can be had with a window it is the ideal spot. Mushrooms do not need light to grow, but light from a west window prolongs their growing season.

"Make your room nine feet wide and any desired length, say six to ten feet. Put the door in the center opening into a passage-way two feet wide. Use the 12 inch boards for sides of bed and let the passsage stop 3½ feet all around. The mushrooms will show soonest where the light falls strongest. Other parts of the bed will "trail" giving the desired succession.

Good Spawn Necessary

"Reliable, live spawn is of the first importance. If your spawn isn't first-class your labor is gone for nothing. I tried spawn twice from an Eastern house, most reliable in its seeds. I planted it in the same bed as spawn procured here and neither time did it give a mushroom, while the home spawn gave its pound and more of mushrooms to the square foot.

"Only within the past six or seven years has there been any dependence to be placed on mushroom spawn. After experimenting about twenty years, Dr. Duggar, now I think of the Department of Agriculture, Washington, succeeded in producing Pure Cultures which means that now the grower is as certain of his variety as the apple grower is certain of his pippins or his Jonathans.

To Prepare the Bed

"Mushrooms are grown in horse manure, the fresher the better, composted. A good two-horse load would be enough for the beds in the room last described, and it should not include any black decomposed stuff. Work it into a snug pile three or four feet high, layering it and pressing it with the back of fork, as you proceed (tramping causes too violent heating,). Sprinkle it liberally every five or six inches as you work the pile up. A total of twenty gallons will not be too much, as manure usually runs. Cover with an old door or two, or loose boards, to prevent drenching by rain. In six or seven day make it into a fresh heap the same way, working the outside into the middle and sprinkle again. In six or seven days more do it again the same way. Then in another week it should be ready for the beds. The straw in it will have shortened and most of the gases be thrown off, but unless pretty moist I would advise doing it just once more with liberal sprinkling, and then in three days it will make up fine. As it is made into the beds it should be quite moist though not wet enough so water could be squeezed out of it..

Ready for the Spawn

"The compost, now short and crumbly, can be wheeled and thrown in through a window or carried in baskets. Spread it about two inches thick over bottom of bed and firm down with a piece of board or scantling. Repeat this until bed is filled to within two inches of top. It may be steaming hot, or may not be. In any case it will be cool in a couple of hours, but a secondary fermentation may take place in two or three days, so when bed is made leave it about four days, when, if it hasn't heated, the spawn can be planted. A dairy thermometer (25 cents) can be plunged in bed to give notice of rise in temperature. If it occurs, the spawn must not be planted until heat has dropped back to about 70 degrees. While the beds are

being made up the compost gives out an odor, not unpleasant, but an hour afterward your nose would not apprise you of its presence.

Planting the Spawn

"The spawn comes in thin bricks which should be broken into a dozen pieces each. Use a dibble or small pointed stick to make the holes (ten inches apart), and fill up snug around the raw edges, the top of the spawn being about half an inch below the surface. Twelve days after spawning, and not sooner, cover with one and a half inches of the nicest cleanest loam obtainable. Have it as moist as possible without being muddy. In about four weeks the crop will begin to appear. In the meantime the top soil or "casing" will have begun to show pretty dry at the end of the first week and will thereafter have to be lightly sprinkled at intervals, just enough to keep it moist, and not enough so that much of any water goes through to the compost. After growth starts pretty strong, more liberal sprinkling can be made, as plants use up moisture. As the end of the bearing season approaches, stimulation can be obtained by using about a tumblerful of liquid household ammonia to five or six gallons of water. Operations begun in early September will give mushrooms galore from Thanksgiving to New Years and in decreasing quantity for one or two months longer. In the spring every vestige of the stuff should be removed as dressing for lawn or garden, and the place whitewashed.

How to Kill Mushroom Midge

"Mushrooms have their pests, a small fly or midge. I discovered this year a plan to settle them. A four candle power electric bulb left lighted occasionally for a couple of hours in the early evening with fly paper tacked on the wall back of it and door of room where beds are left slightly open, has done the business slick and clean. A small kerosene lamp (set it firmly in galvanized iron bushel basket, so no fire could possible result, should you forget to put it out before going to bed) can be used for the same purpose. The midge will find either at a considerable distance and will destroy himself.

The Cost

"The cost? In the present inflated state of the labor market and including carpenter's expense of making a room, where

such might be necessary, it ought to be, including the spawn and the manure, less than $5.00 and this means the other fellow does the work, all but the sprinkling and picking. And, by the way, the picking should be done carefully and cleanly. The holes filled in, all broken and cut off stems burned. I try to leave the roots in the ground and put a pinch of earth over fresh break to foil the small midge, but sometimes the roots come and I cut them off and burn them. Fifty square feet should yield fifty pounds, worth $25 to $30 and then the fun. Why, if you're half the man I think you are you will have pipe and armchair in the basement and put in half your spare time watching them grow.

"Note—If you will at the second close stacking, sandwich an inch of loam between five inches of the manure throughout, it will mix more or less at the third stacking and will, when the beds are made, prevent the secondary fermentation and the spawn can be planted at once without danger of being killed by the heating of the compost. The sprinkling should be done layer by layer before loam is put on. J. C. N.

MARKETS.

The market for mushrooms is practically unlimited. They are quoted like fruit and other produce in the leading cities of the United States. To get the best results, however, a little discrimination should be used. First class hotels and restaurants are very anxious to secure a steady supply of fresh mushrooms. In fact no hotel or restaurant pretends to be "first class" unless "fresh mushrooms" are listed on the bill of fare. At least that is the test applied to them by the public, and they know that in the final analysis the public decides these questions. Best prices are therefore obtained by private contracts with hotels, restaurants or grocers of your own city or neighboring cities. The best market for the mushroom grower lies within a radial distance which may be covered by a passenger train in one night's ride. This enables express companies to make morning deliveries of mushrooms shipped on the preceding day.

Growers who are selecting their market are receiving from 50 cents to one dollar for every pound raised. On the Pacific coast one dollar and fifty cents per pound is often realized.

To obtain best prices mushrooms should be assorted and packed in attractive boxes, such as the box illustrated below.

FRESH MUSHROOMS, GUARANTEED
Guaranteed to be raised from
Lambert's Pure Culture Spawn
and therefore
Absolutely Safe
Gathered every morning from the mushroom beds of
NAME AND ADDRESS OF GROWER

A One-Pound Ventilated Mushroom Box For Market

This Bureau will be pleased to assist its patrons in the selection of markets.

TESTIMONIALS.

Some houses deem it quite necessary to publish pages upon pages of testimonials, bearing upon the quality of their goods. Since this Bureau is not selling any goods of its own, but has used its judgment in selecting the best that others are producing, it will be sufficient to refer its patrons to its own sources of information as to the standard of excellence of "Lambert's Pure Culture Spawn." These sources are the U. S. Department of Agriculture, the leading commercial growers of the United States and Canada, and the Bureau's personal investigations and conclusive tests.

Perhaps an illustrated sample of many letters of like tenor may give an idea of the opinion held by the users of this spawn:

"Gentlemen:

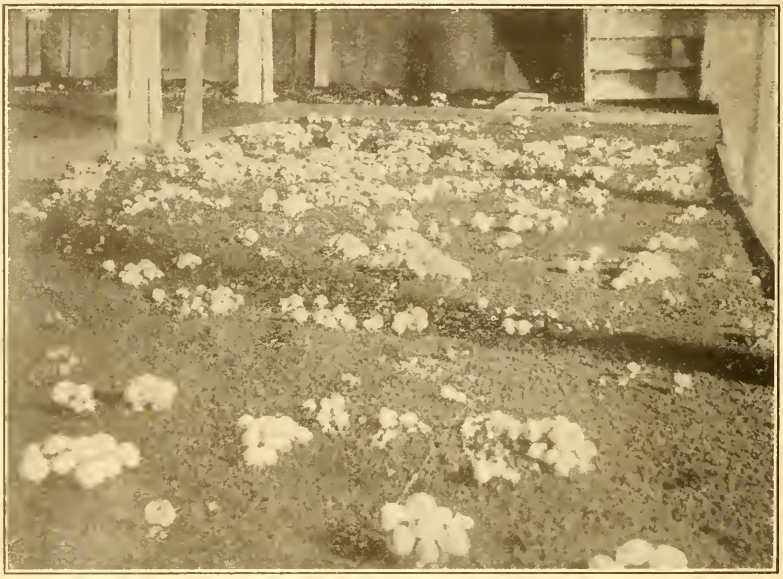
"The cut I am sending you represents a section of my mushroom house of 88 square feet from which I picked the day this photo was taken 27½ lbs. of very fine white mushrooms, or a little over 1-3 of a pound per square foot. My house has 8640 square feet in it, and the total crop yielded 9,450 pounds. Now nearly 1-3 of this surface was spawned with another make which yielded very little. So that I feel confident that where your spawn was used 2 lbs. per square foot is a very moderate estimate of the yield. Do you wonder that this same house is planted this time entirely with "Lambert's?"

Respectfully yours,

W. A. C.

A Bed from Old Spawn

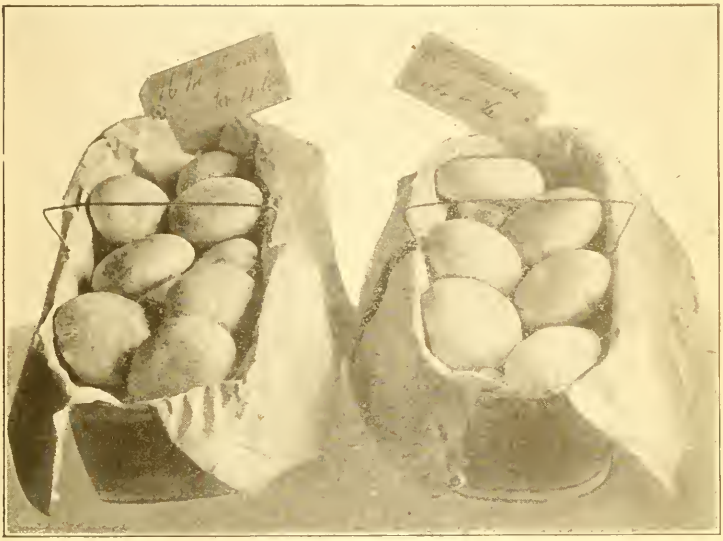
The following photograph was received from a grower who had kept the spawn on hand a year before planting, and illustrates the remaining vitality of "Lambert's Pure Culture Spawn" under this severe test.



We would not advise, however, keeping spawn on hand more than a few months before planting, as ideal conditions for storage, a cool and dry place, are not always available.

A Fleshy Mushroom

At the rate of three mushrooms to the pound, it would not require many of them for a square meal. An enthusiastic grower relates his experience in the photograph illustrated below.



Four Pounds of Mushrooms in Each Basket. Grown From Lambert's Pure Culture Spawn

Further testimonials could be published ad libitum, but they would only emphasize what the world already knows about this spawn.

WHEN TO ORDER SPAWN.

This is probably one of the most important considerations in the business of mushroom growing. It is surprising how many failures are due to neglect in making seasonable arrangements for a supply of spawn when needed. We receive every day orders for spawn accompanied with the remark "Hurry, my beds are ready to plant." Sorry, but if that is true, your labor is lost, for you will either have a failure or a measly crop. And here is the reason:

A vital and essential cultural requirement is that you should plant your spawn when the temperature of you bed **falls** (not when it rises) to about 70 F., not before, not after. It may **not remain there** more than a day or even less. If this favorable condition is lost by neglect or delay a **very serious mistake** has been made; the spawn has not been given a favorable start, and a partial or total failure is the result. We are emphasizing this point very strongly because **we realize** its importance, and because we know that the average beginner **does not.**

The beginner ordinarily delays ordering his spawn under the belief that it will be that much fresher when he receives it. Good spawn stored in a cool place in the ordinary cellar will not perceptibly lose any of its vitality for many months, and then will give a better crop when planted at the right time than fresh spawn planted too late, when the beds have cooled off.

Realizing the contingencies of delays or accidents in transportation, the careful grower will order his spawn **before starting** to prepare his compost or to make his beds. He will take no chances. Not hearing from the shipment within a reasonable time he will make an inquiry. In other words he will make dead sure of his supply of spawn before he risks any labor or expense. Should the spawn arrive promptly, it is only necessary to leave it in the cellar and it will be in prime condition for use when needed. There will then be no danger of missing the critical period when spawning **must** take place.

To the beginner this is especially important in view of the fact that the book of complete instructions accompanying the first order contains many valuable pointers and easy methods of composting the material and preparing the beds. This knowledge he should acquire before making any start.

REGISTERED SPAWN

The makers of "Lambert's Pure Culture Spawn" have a perfect record system by means of which they are able to trace every brick back to the laboratory spore culture. The spawn is "registered." Every case received by this Bureau bears a registered number; a corresponding number is in turn stamped on every package shipped by this Bureau, and is also entered in our records. This makes it possible to investigate thoroughly any complaint and determine the cause.

SEP 21 1912

PRICE LIST OF
Lambert's Pure Culture Spawn

The best and most vigorous high grade spawn in the world. Estimate one brick for about 8 square feet of beds.

A most necessary book, **"The Cultivated Mushroom,"** illustrated, price.....$1.00

This book will be given free with **first order** for 7 or more bricks of spawn.

7 bricks, sufficient for 50 sq. ft., price.....$2.00
14 bricks, sufficient for 100 sq. ft., price..... 3.75
28 bricks, sufficient for 200 sq. ft., price..... 6.00
42 bricks, sufficient for 300 sq. ft., price..... 8.00

Special prices on larger quantities.

Shipments are made immediately.

CANADA—There is no duty on spawn shipped into Canada.

Each brick of "Lambert's Pure Culture Spawn" measures 9 inches in length, 5¼ inches in width and is about 1½ inches thick. The weight may vary from 1 to 1¼ pounds per brick.

Express Charges—Mushroom spawn is rated as seed, and is therefore carried by express companies at lowest rates. Express companies always meet postal rates. The parcel post law, just passed, will therefore insure the very lowest rates obtainable. We watch express charges very carefully, and always secure the lowest.

Remittances—Always remit by post office or express money order, or by registered mail. To personal checks or bank drafts, add 15 cents for exchange or cost of collecting it.

Orders—When ordering use preferably the order blank opposite this page, filling in all blanks. Write name and address plainly to avoid misdirection of shipment. Use enclosed envelope in ordering and remitting.

C. O. D. Shipments—No shipments are made C. O. D.

Adress all communications and make all money orders, drafts, etc, payable to

BUREAU *of* MUSHROOM INDUSTRY
1342 North Clark Street CHICAGO, U. S. A.

Fill in all blank spaces. Detach and mail with remittance, draft, P. O. or Express money order, addressed to:

Bureau of Mushroom Industry,
1342 No. Clark St., Chicago, U. S. A.

Enclosed find $2.00 for which please send me by express 7 bricks of "Lambert's Pure Culture Spawn." This being my first order, please also send me free with this order your illustrated book "The Cultivated Mushroom."

Name in full.....

P. O. Address.....Street Town.....

State.....Express office.....

Business or occupation.....Space available for beds.....sq. ft.

In cave, cellar or house?.....Previous experience.....years

What spawn have you used?.....From what dealer?.....

With what success?.....

Names and addresses of friends also interested in mushroom growing:

.....

.....

.....

.....

.....

.....

LIBRARY OF CONGRESS
00027638235

Hollinger Corp.
pH 8.5